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OPERATING SYSTEM (GATE 2023) - REPORTS

OVERALL ANALYSIS | COMPARISON REPORT | SOLUTION REPORT

ALL(33) | CORRECT(23) | INCORRECT(9) | SKIPPED(1)

Q. 31 Have any Doubt ?

Consider processes P_i and P_j share the critical-section, and uses the Peterson's solution for synchronization. P_i and P_j share the variable 'turn', indicates turn it is to enter in critical section. That is, if 'turn == i', then P_i is allowed to execute in critical section. Both processes also share array 'flag', used to indicate if a process ready to enter in its critical section. That is, if flag[i] is true then P_i is ready to enter in critical section. P_i and P_j both have entry section, critical section, and exit section. And ignore the remainder section.
According to Peterson's solution, which of the following is correct code for entry and exit section of process P_i?

A Your answer is **Correct**

```
Entry section:
flag[i] = true; turn = j;
while (flag[j] and turn == j);
Exit section:
flag[i] = false;
```

Solution :
(a)

B
```
Entry section:
flag[i] = true; turn = i;
while (flag[j] and turn == j);
Exit section:
flag[j] = false;
```

C
```
Entry section:
flag[i] = true; turn = j;
while (flag[i] and turn == i);
Exit section:
flag[i] = false;
```

D
```
Entry section:
flag[i] = true; turn = i;
while (flag[j] and turn == i);
Exit section:
flag[i] = false;
```

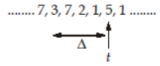
QUESTION ANALYTICS +

Q. 32 Have any Doubt ?

Consider a system uses working-set model to allocate frames and control thrashing. Assume working-set window size is 5. Following is the page-reference string for a process in order:
1, 5, 3, 7, 3, 7, 2, 1, 5, 7, 5, 1, 8
What is the maximum possible size (cardinality) of working set when page 2 is in working set?

5 Your answer is **Correct** 5

Solution :
5



Working set (Δ) at t = {3, 7, 2, 1, 5}
And $|\Delta|$ = 5

QUESTION ANALYTICS +

Q. 33 Have any Doubt ?

Consider the following statements for shared memory and message passing schemes for interprocess communication:
S_1 : Generally, operating system is heavily loaded in message passing method as compare to shared memory method.
S_2 : Generally, message passing method used for exchanging small pieces of information.

S_3 : Two processes can write at shared memory simultaneously without race condition, always.
Which of the above statements is/are correct?

A Only S_2 — Your answer is **IN-CORRECT**

B S_1 and S_3 only

C S_1 and S_2 only — Correct Option

Solution :
(c)
Shared memory (SM) uses system call only at creation of shared memory. Message passing (MP heavily uses system calls.
If two processes writing same location in shared memory, then it can lead to race condition. So, simultaneous write should avoided.

D S_1, S_2 and S_3 all

QUESTION ANALYTICS +